DECnet PCSA Client for DOS

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Supplemental Information Guide

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This manual describes network management enhancements to the DECnet PCSA Client for DOS product.

Supersession/Update Information: This is a new manual.

Operating System and Version: MS-DOS V3.1
MS-DOS V3.2
MS-DOS V3.3
MS-DOS V4.0

Software Version: DECnet-DOS V3.0

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Preface

The purpose of this manual is to provide additional information beyond the scope of restrictions, limitations and known problems. It contains new features and information to customize your installation and increase performance. Several sections describe general hints for various installations and applications.

Intended Audience

This manual assumes that you are familiar with the use of personal computers, the MS-DOS® operating system, DECnet PCSA Client for DOS in a DECnet network.

Structure of This Manual

This manual consists of nine chapters.

Chapter 1	Provides ways to increase performance and decrease memory use.
Chapter 2	Explains considerations you need to make when upgrading Version 2.2 Client Software or installing Version 2.2 Client Software after Version 3.0 Client Software.
Chapter 3	Provides several hints for asynchronous installations. It outlines configuring a VMS node, using DYNSWITCH and ending a DDCMP connection.
Chapter 4	Details helpful hints while using PC DECwindows.

Chapter 5	Provides information on using and upgrading MS Windows™.
Chapter 6	Details specific information for using the MS Windows VT320 terminal emulator.
Chapter 7	Explains the attributes needed for using the screen editor (SEDT).
Chapter 8	Lists errors and warnings when using the Client Software Network Utilities.
Chapter 9	Explains how to tune DECnet PCSA Client for DOS.

Graphic Conventions Used in This Document

The following graphic conventions are used in this manual:

Convention	Meaning
UPPERCASE	In commands and examples, indicates that you should enter the exact characters shown. However, you may enter them in either uppercase or lowercase.
italics	In commands and examples, indicates a value that either the system supplies or you should supply.
$\boxed{key}$	Indicates that you should press the specified key. $\boxed{Alt/x}$ indicates that you should hold down the $\boxed{Alternate}$ key while you press the *x* key, where *x* is a letter.

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Introduction

This document contains supplemental information for DECnet PCSA Client for DOS, Version 3.0 software.

1.1 Changes to Increase Performance and Decrease Memory

The focus of DECnet PCSA Client for DOS Version 3.0 is to increase performance and decrease the amount of necessary memory. This is accomplished in a number of ways:

- Combining Session/NETBIOS with DNP (DECNET)

- Enhancing the datalinks to make better use of data buffers

- Running many components from expanded memory, if available, leaving only a small portion in main memory

- Running the Redirector component out of XMS, if available

- Providing the option to run the DEPCA Datalink out of RAM (conventional) memory instead of the ROMs that are on the DEPCA

- Providing the ability to unload all of PCSA at once or many components separately

- Providing a control program for LAT called LATCP

1.1.1 Other New Features and Software Changes

Other new features and software changes include:

- A utility called BCAST has been added for PC-to-PC broadcast.

- The former DECPARM.TXT file is now called the DECNET.INI file.

- The PCSA MS Windows™ package contains only those device drivers, libraries, and applications required to run in a Digital PCSA environment.

- Changes to CTERM include:

  — More VMS CTERM extensions have been implemented.

  — A /U switch has been added to unload CTERM from memory. This has the same effect as the /R switch.

- LATCP.EXE was added to let the user select a list of preferred local area transport (LAT) services. Unlike the LAT parameter on the NCP DEF NODE command, this works for cluster aliases and reverse LAT services. It creates a DECLAT.DAT file to store the information.

- Changes to the network file transfer (NFT) include:

  — NFT now searches the PATH for .CHR files. They no longer need to be in the same directory as the DECnet database.

  — Support has been added for Codepage 437 (US), 850 (IBM® Multilingual), 865 (Nordic), 860 (Portuguese), and 863 (Canadian-French).

- Changes to the network virtual terminal (SETHOST) include:

  — SETHOST now loads and unloads LAT and CTERM as needed. This requires the unload feature of the new LAT.EXE.

  — Codepage 437 (US), 850 (IBM Multilingual), 865 (Nordic), 860 (Portuguese), and 863 (Canadian-French) support have been added.

  — A Portuguese 7-bit NRC (PORTUGES.CHR) character set has been added as a VT3xx terminal feature.

  — Underline on a color monitor is now a background color that the user can set instead of a foreground color so underlined fields in ALL-IN-1 show the field width.

— The following enhancements were made to the script language. These extensions are not supported by the MS Windows VT320.EXE.

  ■ RING BELL

  ■ PAUSE UNTIL [dd-mmm-yyyy:]hh:mm:ss

  ■ Script command line increased from 80 to 132 characters

  ■ SEND USERNAME [node]

  ■ SEND PASSWORD [node]

— SETHOST now searches the path for the files it needs.

— A SETHOST environment symbol was added to point SETHOST to the files it needs. For example,

```
C> SET SETHOST=d:\decnet\
```

— SETHOST automatically detects color video hardware and sets it in SETUP.

— To provide a faster screen display, "Slow video (BIOS)" and "Fast video (direct)" were added to the general SETHOST setup screen.

— SETHOST now checks to see if your system has BIOS support for the enhanced PC keyboard. If so, the enhanced keyboard map (kbdepc.kbd) is selected.

— SETHOST now checks 286 and 386 systems for a DEC LK250 keyboard and if found, SETHOST selects the LK250 keyboard map (kbdlk.kbd).

— The laptop keyboard map was redesigned for the COMPAQ® SLT/286 laptop keyboard.

— To make the user-defined keys, shift F6 through shift F10, available to host applications, the keyboard mapping for the function keys has been changed.

— The /FILE=filename switch was added to make SETHOST into a local display program for files with VT text graphics.

— The NVT7BIT=1 environment symbol was added to force SETHOST to truncate all characters to 7 bits. This is useful for PSI connections that send 7-bit characters with parity enabling SETHOST to display them as international characters.

- The NVTNRC=1 environment variable was added to prevent the VMS command SET TERMINAL/INQUIRE from switching the national character set setting to DEC multinational.

- The Transparent File Access utility (TFA) supports the commands ASCII and BINARY to override the automatic detection of ASCII files. There is also an AUTO command to restore the default behavior, and a MODE command to query TFA about its current mode.

1.2 Documentation Errors

This section covers errors in *Configuring Extra Memory* and the *DECnet PCSA Client for DOS Release Notes*.

1.2.1 Configuring Extra Memory

The following table lists the location of the errors in *Configuring Extra Memory* and how to correct them:

Location	Correction
Chapter 2, Table 2-3	Delete the second entry under "Memory Amount/Type". There can be only one.
Chapter 2, DECstation 320	Insert "loadhi" before "dnpethld" in the STARTNET.BAT file.
Chapter 2, Table 2-5	Replace "QEMM-386" with "386MAX" under Memory Manager.
Chapter 2, OS/2™ Model 80	Locate the following phrase: "Allocates upper memory." Replace it with: "Excludes Etherlink/MC memory mapped area."

Client Software Installation

This chapter provides information about:

- Upgrading Version 2.2 client software
- Installing Version 3.0 client software

2.1 Upgrading Version 2.2 Client Software

If you install the Version 2.2 client software to run with a Version 3.0 server, you must do the following:

1. Copy *.TSK from [PCSA] to [PCSA.LOAD_FILE.V22]. The .TSK files must be in both directories for existing workstations to continue to work correctly and for new workstations to be configured correctly.

2. Rename [PCSA.LOAD_FILE.V22]MC5010.TSK to [PCSA.LOAD_FILE.V22]IL5010.TSK.

3. Edit the SYS$STARTUP:LAD_LOGICALS.COM file as follows:

   a. Copy the line that defines PCSA$SYSTEM_CONTAINER. Add "_V22" to the end of the logical name, for example:

      `PCSA$SYSTEM_CONTAINER_V22`

   b. Save the modified LAD_LOGICALS.COM file.

   c. At the VMS prompt, enter:

      `$ @sys$startup:lad_logicals.com`

2.2 Installing Version 2.2 Client Software After Version 3.0 Client Software

If you install the Version 2.2 client software after installing the Version 3.0 client software on the Version 3.0 server, you must do the following at the server:

1. Copy *.TSK from drive:[PCSA] to [PCSA.LOAD_FILE.V22]. The .TSK files must be in both directories for existing workstations to continue to work correctly and for new workstations to be configured correctly.

2. Rename [PCSA.LOAD_FILE.V22]MC5010.TSK to [PCSA.LOAD_FILE.V22]IL5010.TSK.

3. Edit the file SYS$STARTUP:LAD_LOGICALS.COM.

4. If there are multiple definitions of the PCSA$SYSTEM_CONTAINER or PCSA$SYSTEM_CONTAINER_V30, delete all but the last instance in the file.

5. Copy the line that defines PCSA$SYSTEM_CONTAINER. Add "_V22" to the end of the logical name; for example,

```
PCSA$SYSTEM_CONTAINER_V22
```

6. Change the filename in the line that defines PCSA$SYSTEM_CONTAINER to match the filename in the line that defines PCSA$SYSTEM_CONTAINER_V30.

7. Save the changes you made to the LAD_LOGICALS.COM file.

8. At the VMS prompt, enter:

```
$   @sys$startup:lad_logicals.com
```

9. If a workstation is using MS Windows on a regular basis, modify the AUTOUSER.BAT to connect to the virtual disk and add the MS Windows path to the search path. Consider the example:

```
use ?: MSWINV21 /v /env=MSWIN
if errorlevel 1 then goto END
path %PATH%;%MSWIN%\PCSTD;%MSWIN%\PCAPP
```

If a retail version of MS Windows is installed on a virtual disk, replace MSWINV21 in the first line of this example with the name of the virtual disk where the MS Windows files are located.

If you have installed a retail version of MS Windows on a hard disk, modify the AUTOUSER.BAT file to add the location of the MS Windows file to the search path. For example:

```
path %PATH%;C:\WINDOWS
```

If you use MS Windows on a workstation on a regular basis, modify the AUTOEXEC.BAT to connect to the virtual disk and add the MS Windows path to the search path.

For example, in AUTOEXEC.BAT:

```
call STARTNET
use f: mswinv21 /v
path %path%;f:\pcstd;f:\pcapp
```

Asynchronous Installation

This chapter provides information needed to install DECnet PCSA Client for DOS in an asynchronous environment. Refer to *Installing DECnet PCSA Client for DOS (with Diskettes)* for more information.

3.1 General Hints

The following are general installation hints:

- Remember to switch the send and receive leads properly when connecting your IBM-PC™ to the adjacent node. Use an asynchronous DDCMP connection through a null modem cable.

  ### NOTE

  > Do not use a terminal switch or terminal server using LAT to connect your DECnet PCSA Client for DOS system to the adjacent node.

- When using a router for asynchronous connections, match the line speed to the line speed of your machine and set the circuit to full duplex.

  For example:

  ```
  Direct:  SET LINE SPEED 9600 MODEM DATA_LEADS_ONLY
  Modem:   SET LINE SPEED 1200 MODEM YES
  ```

  Set the circuit cost and hello timer to the appropriate values. Make sure the state parameter is ON.

- When making a direct asynchronous DDCMP connection to an RSX-11 system, consider the following:

  - The controllers can support terminals or DDCMP lines, but not both.

  - Ensure that SYSGEN or system configuration **does not** include the chosen controller.

  - Ensure that DECnet build **does** include the chosen controller.

- When connecting directly to a VMS system using asynchronous DDCMP, consider the following: the VMS system can share the lines on a controller between terminal support and asynchronous DDCMP support.

- When configuring your VMS adjacent node, use the following commands as a guide. These commands establish the chosen terminal lines as dedicated DDCMP lines.

Perform on Every Reboot

```
$! Load asynch DDCMP device driver. This must be done after
$!  every system boot.
$ run sys$system:sysgen connect noa0/noadapter
$! Tell VMS which lines are to be dedicated to DDCMP
$!  This must be done after every system boot
$set term /protocol=ddcmp/speed=9600/notypeahead/perm ttb4:
$set term /protocol=ddcmp/speed=9600/notypeahead/perm ttb5:
$! Use NCP to properly configure the lines and circuits
$!  Remember that DEFINE changes the permanent database
$!  and SET works immediately.
$ NCP
```

Perform Only Once

```
define line tt-1-4 state on receive buffers 4
define line tt-1-5 state on receive buffers 4
define circuit tt-1-4 state on
define circuit tt-1-5 state on
exit
```

3.2 Configuring a VMS Node

When configuring your VMS adjacent node, use the following commands as a guide. These commands establish all terminal lines as switchable DDCMP lines.

1. Load the asynchronous DDCMP driver, NODRIVER, using the following command:

   ```
   $MCR SYSGEN
   SYSGEN> CONNECT NODRIVER/NOADAPTER
   SYSGEN> EXIT
   ```

2. Install DYNSWITCH as a shareable image. The DYNSWITCH image controls the switching of the line. Use this command:

   ```
   $ INSTALL CREATE SYS$LIBRARY:DYNSWITCH/SHARE/PROTECT/HEADER/OPEN
   ```

3. Create a virtual terminal. This allows you to break the physical terminal connection without losing the logical connection between the two systems. Use the following command:

   ```
   $MCR SYSGEN
   SYSGEN> CONNECT VTA0/NOADAPTER/DRIVER=TTDRIVER
   SYSGEN> EXIT
   ```

   If you performed these changes after logging in, you must log out and back in again to initiate the changes.

4. Set the terminal line for 8-bit characters with no parity and assign the DISCONNECT attribute.

   NOTE

   The DISCONNECT attribute enables use of the virtual terminal and must be permanent. You can set the /PERM switch after every boot or modify the default terminal characteristics. If your terminal device designator does not begin with the VT prefix, you must ensure that step three was performed.

5. Set the following parameters in the node database for the node that switches the asynchronous connection.

   - Set the INBOUND parameter to ENDNODE.

- Set the RECEIVE PASSWORD to match the remote node's EXECUTOR TRANSMIT PASSWORD.

```
NCP>SET NODE node-id INBOUND ENDNODE RECEIVE PASSWORD password
```

NOTE

A password converts to uppercase letters unless you define it as a quoted string.

3.3 Connecting Your PC to a Network Using DYNSWITCH

When connecting your PC to a network using DYNSWITCH, perform these steps:

1. If the DECnet line state is ON, set it to OFF using this NCP command:

```
NCP>SET LINE STATE OFF
```

2. Match the EXECUTOR TRANSMIT PASSWORD with the RECEIVE PASSWORD for the remote system **node** definition. The password will be converted to uppercase letters unless you enclose it in quotes.

NOTE

Do not set the EXECUTOR RECEIVE PASSWORD. When you use DYNSWITCH, DECnet-VAX does not send a password during routing initialization. Setting the receive password results in no communications.

3. Match the terminal line and the DDCMP line to the speed of the line you use. The lines do not share line characteristics.

4. Connect to the VMS system using a terminal emulator.

5. Log in to the VMS system.

6. When you are ready to switch from a terminal line to a DDCMP line, enter the following DCL command:

```
$ SET TERMINAL /PROTOCOL=DDCMP/SWITCH=DECNET/MANUAL
```

7. When the VMS system initiates the switch, a message appears on the terminal. The message says you must exit terminal emulation mode and turn on the DECnet line.

NOTE

If the line is not on within four minutes, there are two possibilities. Static asynchronous lines return to terminal mode. Dial-up asynchronous lines hang up and disconnect.

The circuit on the VMS system side enters the ON/STARTING state for about 4 minutes, if one of the following conditions is present:

- The switched line is a hardwired line from the personal computer to the VMS system

- You use a modem with the /NOHANGUP parameter

This enables the PC user to set the line back on and have it operational without repeating the entire DYNSWITCH procedure.

3.4 Ending a Switched DDCMP Connection

On a VMS system you can terminate a DDCMP connection that DYNSWITCH creates from either end by turning the line circuit off.

- The PC user sets the line to OFF using this command:

    ```
    C:\>NCP SET LINE STATE OFF
    ```

- On the VMS system, you can either set circuit or the line to OFF.

    ```
    $ NCP SET LINE TT-1-1 STATE OFF
    ```

    With the circuit or line set to OFF, all respective database information is lost and the asynchronous line returns to terminal mode.

4
PC DECwindows

This chapter provides information about the following aspects of PC DECwindows:

- Helpful hints for using PC DECwindows
- Memory statistics
- Additional error messages

4.1 Helpful Hints

This section contains helpful hints for using PC DECwindows.

You may need to change some VMS quotas. For suggested VMS quotas, see Table 4–1. The displayed values in Table 4–1 are valid for VMS Version 5.1. For other versions of VMS, the values may be different. Refer to the appropriate documentation for your software version and installation.

Table 4–1: Suggested VMS Quotas (for VMS Version 5.1)

Quotas	Value	Quotas	Value
FILLm	40	JTquota	4096
BIOlm	100	WSdef	512
DIOlm	100	WSquo	1024
ASTlm	325	WSextent	16384
TQElm	10	Pgflquo	32000
Enqlm	600	Maxjobs	0
BYTlm	64000	Maxacctjobs	0

The PC Session Manager allows you to remotely start applications. To analyze remote startup problems from a VMS system, look at the NETSERVER.LOG file. This file is created every time you try to start a VMS DECwindows application remotely from PC DECwindows. The NETSERVER.LOG file shows which application was being run and any errors or warnings that occurred. This information is valuable because application errors are otherwise lost. Another way to display error and warning messages when running applications is to run them from a terminal and not from the PC Session Manager.

4.2 Memory Statistics

The DWDOS286 and DWDOS386 executables display two memory statistics in the PC Session Manager window. The PC Session Manager window is located below the title bar if a window manager is running. Table 4–2 gives the statistic type and an explanation.

Table 4–2: Memory Statistic Types and Explanations

Statistic Type	Explanation
Suspend Session Memory	The DOS (or conventional) memory available in Kbytes for a suspended session. Range: 0 to 640. Does not change when it is set. See the *Network Commands Reference Manual*, dos_reserve switch, for more details.

Table 4–2 (Cont.):   Memory Statistic Types and Explanations

Statistic Type	Explanation
Memory Used	A rough percentage of the amount of total system memory used for the session. Increases as DECwindows applications are started. Swapping increases as this number approaches 100%. This number will exceed 100% when swapping is heavy. See *PC DECwindows User's Guide* for more information on memory and PC DECwindows.

4.3 Additional Error Messages

Following are error messages that do not appear in the *PC DECwindows User's Guide*.

Bad environment variable DOSX

> **Severity:** Fatal
>
> **Explanation:** The DWDOS386 executable was run with an unknown switch set in the DOSX environment variable.
>
> **User Action:** Check the DOSX environment variable.

Can't allocate memory for GDT

> **Severity:** Fatal
>
> **Explanation:** The DWDOS286 executable was started from a suspended session and did not have any memory to run.
>
> **User Action:** Reboot the system.

Error creating VM swap file of size 0

> **Severity:** Fatal
>
> **Explanation:** The DWDOS386 executable could not create the swap file because of insufficient disk space.
>
> **User Action:** Set the swap directory to a disk with at least 1 Mbyte.

Fatal error: Could not reopen VM swap file after exec

Severity: Fatal

Explanation: The DWDOS386 executable could not open the swap file after resuming from a suspended session.

User Action: Restart PC DECwindows.

Fatal error: Missing value to command switch

Severity: Fatal

Explanation: The DWDOS386 executable was run, and the DOSX environment variable switch had a bad parameter.

User Action: Check the DOSX environment variable.

Not enough extended memory

Severity: Fatal

Explanation: The DWDOS286 executable was run on a system without enough extended memory.

User Action: Add memory to the system.

System does not have an 80386 processor

Severity: Fatal

Explanation: The DWDOS386 executable was run on a system that does not have an Intel® 80386 processor.

User Action: Run the DWDOS386 executable on a system with an Intel 80386 processor.

The 386 chip is currently executing in virtual mode under the control of another program. You must turn off this other program in order to use 386 | DOS-Extender in protected mode.

Severity: Fatal

Explanation: The DWDOS386 executable was run when a non-VCPI 386 memory manager was already running.

User Action: Use a VCPI 386 memory manager or turn off the memory manager with the SET DOSX= CEMM command.

MS Windows

This chapter contains the following information about PCSA support of MS Windows:

- File locations
- Installing and upgrading MS Windows

5.1 File Locations

With PCSA Version 3.0, Digital applications and device drivers that run in the Microsoft Windows/286 2.x environment are located as follows:

- Applications for MS Windows are located in the \PCAPP directory.
- Device drivers for MS Windows are located in the \WINDRV directory.

5.2 Installing and Upgrading MS Windows

This section provides information about installing and upgrading MS Windows:

- Install DECnet PCSA Client for DOS before installing MS Windows.
- If you are upgrading from PCSA Version 2.2, the upgrade procedure:
  - Creates the virtual disk MSWINV21
  - Transfers existing Version 2.2 MS Windows files from the system service PCSA$DOS_SYSTEM_V22 to MSWINV21

— Causes the files that have been modified and shipped with PCSA Version 3.0 to overwrite those in MSWINV21

- If you are installing MS Windows as a service with PCSA Version 3.0 and you want to use the Digital applications and device drivers:

  1. Connect to the system service PCSA$DOS_SYSTEM_V30 before running the MS Windows Set-Up utility.

  2. When prompted by the Set-Up utility, choose OTHER.

  3. Enter the drive letter for the system service and the path for the location of the application and device driver files. For example:

     ```
     D:\WINDRV
     ```

- Modify the AUTOEXEC.BAT file to connect to the virtual disk and add the MS Windows path to the search path.

  For example, if you are upgrading from Version 2.2 to Version 3.0, edit the AUTOEXEC.BAT file as follows:

  ```
  call STARTNET
  use f: mswinv21 /v
  path %path%;f:\pcstd;f:\pcapp
  ```

The MS Windows VT320 Terminal Emulator

This chapter provides information about:

- Using VT320 Set-Up without a mouse
- Using VT320 special features

6.1 Using VT320 Set-Up Without a Mouse

Table 6–1 lists the keys used with the VT320 emulator and their functions.

NOTE

To access and use the arrow keys with the VT320 emulator, you must press the Alt/spacebar keys. The first time you press this key combination, you get the Set-Up System Menu. To access the arrow keys, press the Alt/spacebar keys a second time.

Table 6–1: Keys and Their VT320 Emulator Functions

Key	VT320 Emulator Function Key
Arrows (Right and Left)	When used after Alt/spacebar , moves the highlight right or left to the next Set-Up setting.
	Moves the cursor right or left in the tab column display when setting manual tab stops.

Table 6–1 (Cont.):   Keys and Their VT320 Emulator Functions

Key	VT320 Emulator Function Key
Enter	Sets or resets a tab stop in Set-Up.
F3 (Set-Up)	Enters or exits Set-Up.
Next	Used in Set-Up to display the next Set-Up screen from the menu at the top of the screen.
Prev	Used in Set-Up to display the previous Set-Up screen from the menu at the top of the screen.

6.2 Using VT320 Special Features

This section tells you how to:

- Use configuration files

- Save and Recall Set-Up selections

- Receive characters using files

- Autotype characters using files

6.2.1 Using Configuration Files

The VT320 emulator allows you to save Set-Up settings in a Set-Up configuration file. You can have several of these files, each specifying different settings. The following describes how the VT320 emulator uses these files, how you can manipulate them, and how to specify set-up files.

What the VT320 Emulator Does

When you start the VT320 emulator, it looks for the default Set-Up configuration file named DEFAULT.320. When found, this file configures your VT320 emulator with the initial values of all Set-Up selections.

If the VT320 emulator does not find the DEFAULT.320 file, it configures your VT320 emulator with the factory default settings instead.

What You Can Do

When you start the VT320 emulator, you can direct it to run a Set-Up configuration file other than DEFAULT.320.

You can also run configuration files after you start the VT320 emulator. To run these files, use the RECALL SET-UP Parameters as described in Section 6.2.2.

These Set-Up configuration files need not reside in the current directory. You can precede configuration file names with a directory path. For more information about appropriate file naming, see your DOS reference manual.

Specifying Set-Up Configuration Files on Startup

To specify a Set-Up configuration file when you start the VT320 emulator, do one of the following:

- Select the RUN command.

  A dialog box requests the name of the application you want to run.

  1. Enter VT320 followed by a space and the name of the desired configuration file. The .320 is the default extension if none is given.

  2. Click on the OK command button.

- The standard WIN.INI file distributed with your system associates the file extension .320 with the VT320 emulator. This association lets you run Set-Up configuration files with a .320 extension as if they were the VT320 emulator.

  You click on the Set-Up configuration file in the MS DOS® Executive window and start the emulator with the settings contained in that Set-Up configuration file.

You can also save or start Set-Up configuration files after you start the VT320 emulator. Use either the SAVE SET-UP Parameters or the RECALL SET-UP Parameters selection from the ACTIONS screen.

6.2.2 Saving and Recalling Set-Up Files

After you select the desired settings, you can save and recall them from the default file, DEFAULT.320, or a file you specify. When you start the VT320 emulator, it looks for one of these files and initializes the emulator to the values contained in that file.

To save your VT320 Set-Up selections:

1. Select the ACTIONS screen.

2. Click on the SAVE SET-UP Parameters.

   A dialog box requesting a file name is displayed. The dialog box either displays the default file name or the last file name you entered. You can edit this file name or replace it.

   NOTE

   If you select a currently displayed file,
   any settings you made replace any
   existing settings in that file.

3. Save your settings in the new or selected file by clicking on the OK command button.

To recall VT320 selection settings under Set-Up:

1. Select the ACTIONS screen.

2. Click on RECALL SET-UP Parameters.

   A dialog box requesting a file name is displayed. It will also either display the default file name or the last file name you entered. You can edit this file name or replace it.

3. Recall saved settings from the selected file by clicking on the OK command button.

6.2.3 Receiving Characters from the Host Into a File

The status portion of your screen indicates whether session logging is active or idle during this process.

Follow these steps to receive characters from a host into a file using session logging:

1. Select the ACTIONS screen.

2. Click on the RECEIVE FILE selection and a drop-down menu displays the RECEIVE FILE options.

3. Select the OPEN FILE or the OPEN and APPEND option and a dialog box asks for the name of the file you want to receive the characters.

4. Enter the file name.

5. Click on the OK command button.

6. To stop receiving and close the file, select CLOSE FILE from the Receive File menu. To suspend reception of characters without closing the file, you can alternately select On and Off from the RECEIVE FILE menu.

6.2.4 Autotyping Characters to the Host

The status portion of your screen indicates whether autotyping is active or idle during this process.

When a file is autotyped to VMS, you must enable HOSTSYNC under VMS by entering:

```
$ SET TERMINAL/HOSTSYNC
```

This prevents data overruns on a VMS host.

To autotype characters to the host from a file, perform these steps:

1. Select the ACTIONS screen.

2. Select SEND FILE.

3. Select the OPEN FILE option and a dialog box appears, asking for the name of the file you want to autotype.

4. Enter the file name.

5. Click on the OK command button. File autotyping stops when the end of the file is reached. You can also stop autotyping the file by selecting CLOSE FILE from the Send File menu.

SEDT Screen Editor

This chapter contains the following information concerning the SEDT screen editor <HEX STRING> attributes

7.1 <HEX STRING> Attributes

The following information should be added to Appendix A of the *SEDT User's Guide*:

When you use the command PALETTE=<HEX STRING> in your SEDT.CNF configuration file, the <HEX STRING> attributes are as follows:

`PALETTE=<AABBCCDDEEFFGGHHIIJJKKLLMMNNOOPP>`

where:

AA	= Normal
BB	= Bold
CC	= Blink
DD	= Bold Blink
EE	= Underline
FF	= Bold Underline
GG	= Blink Underline
HH	= Bold Blink Underline

II	= Reverse
JJ	= Bold Reverse
KK	= Blink Reverse
LL	= Bold Blink Reverse
MM	= Underline Reverse
NN	= Bold Underline Reverse
OO	= Blink Underline Reverse
PP	= Bold Blink Underline Reverse

The first letter of each pair corresponds to the background color and the second letter to the foreground color.

8

Client Software Network Utilities

This chapter provides information on errors and warnings related to HIMEM that might be displayed.

When HIMEM properly installs itself, the system acknowleges with this message:

```
64K High Memory Area is available.
```

8.1 Errors and Warnings

This section discusses error messages that are displayed when HIMEM cannot properly install itself.

ERROR: HIMEM.SYS requires DOS 3.0 or greater. XMS Driver not installed.

> **Explanation:** HIMEM can only be used on systems with MS-DOS Version 3.0.

ERROR: HIMEM.SYS requires an 80x86-based machine. XMS Driver not installed.

> **Explanation:** HIMEM can only be installed on a computer system that has an 80286 or 80386 microprocessor.

ERROR: An Extended Memory Manager is already installed. XMS Driver not installed.

>**Explanation:** HIMEM can only be installed once. Installing it more than one time results in an error for the second and subsequent installations.

ERROR: No available extended memory was found.

>**Explanation:** HIMEM can only be installed on a computer with extended memory.

ERROR: Unrecognized A20 hardware.

>**Explanation:** HIMEM cannot recognize the A20 hardware of your system. If this occurs, it is probably because the system is not one supported by this release of HIMEM. Contact your OEM to see if an XMS driver exists for your machine.

WARNING: The High Memory Area is unavailable.

>**Explanation:** HIMEM cannot find enough memory to use the High Memory Area. HIMEM cannot process any requests for the High Memory Area. However, HIMEM remains installed to process any requests for the Extended Memory Data Blocks.

WARNING: The A20 Line was already enabled.

>**Explanation:** HIMEM detected the A20 hardware already enabled when it was installing, which is an abnormal condition. It is most commonly caused by another program which is controlling the A20 line in an inappropriate manner. HIMEM remains installed and attempts to work properly, however it never disables the A20 line.

Tuning DECnet PCSA Client for DOS

This chapter explains how to adjust DECnet PCSA Client for DOS parameters to match the conditions of your network. Refer to the *DECnet-DOS Network Management Guide* for complete information.

Default parameters are adequate for most users. If problems arise, you can adjust some parameters using the Network Control Program (NCP).

9.1 Responsiveness to Lost Packets

DECnet software maintains dynamic timers that adjust automatically to track the performance of your entire network connection.

The round-trip delay (RTD) is the primary timer. It estimates how long packets take to travel across the network and receive acknowledgment. Use the NCP SHOW ACTIVE NODES command to see the round trip delay in the Delay column in seconds. The default for a new connection is 5 seconds. The RTD timer adjusts according to the success of succeeding transmissions.

The EXECUTOR DELAY WEIGHT parameter determines the timer adjustment in seconds. Table 9–1 shows the effect on performance.

Table 9–1: Delay Weights

Delay Weight Value	Action
Low	Timer speeds up.
High	Timer slows down.

Packets are overdue if they do not comply with the following formula:

```
(RTD + Delay Weight)* Delay_Factor/16
```

When the packet time out occurs, the packet retransmits and the
EXECUTOR RESPONSE TIMEOUT is incremented. Table 9–2 shows the
delay factors possible.

Table 9–2: Delay Factors

Connection Type	Delay Factor Value
Ethernet	32
DDCMP	48

Lowering the delay factor causes faster timeouts and unnecessary
retransmissions. Raising it decreases response to lost packets and degrades
performance.

NOTE

You can use this technique to improve
performance on other DECnet systems.

9.2 Connection Persistence

In addition to the information in Section 9.1 there are two parameters to
consider in dealing with transmission errors. The length of time that a link
persists depends upon:

- The EXECUTOR RETRANSMIT FACTOR parameter
- The EXECUTOR CONFIDENCE TIMER parameter

The following sections describe these parameters.

9.2.1 The Executor Retransmit Factor Parameter

The first variable in dealing with transmission errors is the EXECUTOR RETRANSMIT FACTOR. A link keeps trying to send a message every time a packet acknowledgment is overdue (RTD + Delay Weight)* Delay_Factor/16. The retransmit counter decreases when packets retransmit. The EXECUTOR RETRANSMIT FACTOR parameter sets the counter initial value. Table 9–3 shows the default values used.

Table 9–3: Default Retransmit Factors

Connection Type	Default Value
Ethernet	12
DDCMP	6

The retransmit counter resets when it receives an acknowledgment. If the retransmit counter reaches zero before receiving an acknowledgment, the confidence factor will count down and the link disconnects.

9.2.2 The Executor Confidence Timer Parameter

The second variable in dealing with transmission errors is the EXECUTOR CONFIDENCE FACTOR. When the retransmit counter reaches zero, the confidence timer starts. Retransmission continues for a while before the link disconnects. Continued retransmission allows you to specify a node-wide persistence that is not related to the measured round-trip time. Also, any application may request its own confidence timer value on a per connection basis by using the LINKHOLD socket option. The default is 15 seconds.

9.3 Application Performance

DECnet-DOS buffers transmit and receive data so that the program can perform other operations while the network is functioning. DECnet sets quotas on how much data to buffer in order to control the buffers.

Before transmission, DECnet breaks down network data into packet-sized buffers. DECnet determines segment buffer size at connection time. Buffer size varies with the connected system. The application can observe the segment size with the DSO_LINKINFO socket option.

DECnet buffers transmit requests until the number of segments used exceeds the EXECUTOR TRANSMIT PIPE QUOTA value. Then additional send requests block or return an EWOULDBLOCK error code.

Increasing the quota allows the network to buffer more user data for transmission. Performance improves because of fewer request refusals. Increasing the quota increases the number of user data buffers required by the network.

DECnet buffers segments received until the number of segments equals the EXECUTOR RECEIVE PIPE QUOTA value. Then the network transport protocol does not allow the remote program to send any more segments unless needed to complete the last user message.

Increasing the RECEIVE PIPE QUOTA allows the network to buffer more user data before posting a receive. By using a segment count credit system, increasing the pipe size allows exchange of fewer control messages with the transmitting node. Generally, it helps to set the RECEIVE PIPE QUOTA to the number of segments in your application message. However, you must allow for these segments in the following:

- The size of the buffer pool
- Their effect to control the size of the network data space

The default pipe quotas are six each, allowing an efficient exchange of 8-Kb messages on the Ethernet. PCSA/MS-Networks uses this quota size. However, DECnet-DOS assigns six buffers for each network link (see Table 9–3).

9.4 Single-Buffered Ethernet Adapters

Some Ethernet adapters are in this release, but are not supported. DECnet PCSA Client for DOS includes them for backward compatibility. For example, the 3Com EtherLink 3C501 has only one buffer for both receives and transmits. One operation may be active at a time. Once the operation completes, the driver must set up the next operation before it can occur.

A single buffer affects reception of the following conditions:

- An adapter in a slow-speed system such as an 8088-based system
- A node in a network of more than 200 systems
- Communicating with very high-speed systems

9.4.1 Reception Problem of Missing Packets

DECnet nodes cannot anticipate packet arrivals. Nodes cannot determine when packets are lost while transmitted. For loss of single packets, the transmitting node must time out and try again. DECnet PCSA Client for DOS Version 3.0 provides a mechanism for large messages spanning several segments and when there are several messages in a row.

DECnet can buffer packets that arrive out of order, but within the EXECUTOR RECEIVE PIPE QUOTA value. Before issuing error messages, DECnet caches packets and waits for the arrival of the missing ones. When you set the EXECUTOR NAK QUOTA parameter equal to the RECEIVE PIPE QUOTA parameter, out-of-order packets receive a negative acknowledgment (NAK). The transmitter in turn retransmits from the last acknowledged packet. Performance improves because there are no timer delays.

9.4.2 Reception Improvement with Increased Pipe Quotas

Increasing the receive pipe quota to six or eight causes the transmitting node to send several segments at a time. This increases the chances that a successful packet follows a missed packet.

Changing pipe quotas causes an increased number of retransmissions. Retransmissions increase because the network services protocol (NSP) always retransmits in sequence. The NCP cannot exclude the successful out-of-order packets.

Sometimes it helps to set the RECEIVE PIPE QUOTA value to 1. This action forces the transmitting node to send one segment at a time. The node must acknowledge the segment before sending the next one. In this case, the NAK quota is not useful. You can also try setting the receive pipe quota to a value of two. DECnet always sends the flow control message at half of the pipeline quota.

9.5 Turning Off Multicast Receive

The 3Com EtherLink 3C501 and Interlan NI5010 adapters do not have hardware support for filtering multicast packets. Consequently, you must use software to receive and reject packets on the LAN not destined for your node. CPU performance determines the interference with network communications.

DECnet allows you to turn off all use of the multicast addresses. When multicast addresses are off, the Ethernet drivers disable reception of multicast packets in hardware and software. This removes interference caused by packets competing with the adapter and CPU resources.

To disable all multicast reception, follow these steps:

1. To disable the multicast circuit, enter this NCP command:

    ```
    C:\>NCP DEFINE CIRCUIT MULTICAST-LISTENER DISABLE
    ```

    This command directs the routing layer to ignore routing messages. It causes the routing layer to lock on to the first router that signals within 1 minute of system startup. The designated router remains active until there is a retransmission problem.

    When a retransmission problem occurs, the multicast listener circuit is enabled for 1 minute. The routing layer also reenables routing multicast listening every 10 minutes for a duration of 1 minute.

2. Use this command to disable the service state of the circuit:

    ```
    C:\>NCP DEFINE CIRCUIT SERVICE DISABLE
    ```

    Multicast loopback responses and MOP console requests stop.

3. Disable the reception of LAT service announcements by adding the following line to your STARTNET.BAT file (or by issuing this command when you invoke LAT from the command line):

    ```
    LAT /N
    ```

    You must add the /N switch to the LAT process start-up command line. This disables the reception of LAT service announcements. Only LAT services explicitly defined in the node database are reachable (cluster aliases and reverse services are not).

4. Disable multicast listening for the LAST component by including the following line in your STARTNET.BAT file (or by issuing this command from the command line):

```
LAST /M:D
```

Multicast listening is disabled if the node uses PCSA disk service.

You must now reboot your system so that these new parameters take effect.

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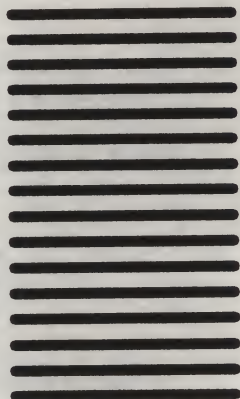DO NOT CUT – FOLD HERE AND TAPE

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